

## ***Acacia* Miscellany 1. Some oligoneurous species of *Acacia* (Leguminosae: Mimosoideae: Section *Plurinerves*) from Western Australia**

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### **Abstract**

Cowan, R.S. & B.R. Maslin. *Acacia* Miscellany — 1. Some oligoneurous species of *Acacia* (Leguminosae: Mimosoideae: Section *Plurinerves*) from Western Australia. Nuytsia 7(2): 183-199 (1990). A key is presented to seven new Western Australian species of plurinerved wattles (*A. awestoniana*, *A. cassicula*, *A. consobrina*, *A. lanei*, *A. lobulata*, *A. spongolitica* and *A. verricula*), one new variety (*A. flavipila* var. *ovalis*) and to several other related and previously described species. The need for a new name (*A. lanuginophylla*) for *A. lanuginosa* C. Gardner is discussed and the identity of *A. glutinosa* F. Muell. is considered.

### **Introduction**

The taxa of the *Acacia verricula* and *A. flavipila* alliances, some of which are treated herein, have few characteristics in common other than that many have resinous vegetative and/or flower parts and the flower-heads are borne in axillary racemes, although these are often very short. In addition, both groups of taxa have oligoneurous phyllode-nervature (for definition, see Maslin & Pedley (1988). Pedley (1987) used the term oligoneurous in a much more restricted sense than we are: we use it to refer informally to taxa characterized by phyllodes having only a few, distant longitudinal nerves with or without anastomosing minor nerves between them). These alliances are informal groupings, intended merely as mnemonic devices for ourselves and for potential users; however, the species in each grouping, or alliance, are probably genuinely related to one another. They are all treated in the following key but descriptions are provided only for the new taxa; these are numbered in the key and arranged alphabetically in the text.

This is the first of a series of papers, by one or more of the "Wattle Team" at PERTH; this and those following are intended to validate the names of new taxa and to present extended notes, new names, new combinations and redescriptions of previously described taxa, prior to the synoptic treatment of them in the "Flora of Australia". Measurements in the following descriptions are taken from dry material unless otherwise noted.

## Key to taxa

1. Phyllodes four times or more longer than wide
  2. Phyllodes terete .....7. *A. lobulata*
2. Phyllodes flat
  3. Flowers 4-merous..... 8. *A. spongolitica*
  3. Flowers 5-merous
    4. Phyllodes obviously soft-pubescent
      5. Phyllodes and branchlets densely lanate, nervation of phyllodes  $\pm$  obscured by pubescence ..... 6. *A. lanuginophylla*
      5. Phyllodes and branchlets villose but phyllode nervation not obscured
        6. Phyllodes more than 2.5 cm long and 3 mm wide; legumes 6-8 mm wide, strongly plicate..... 3. *A. consobrina*
        6. Phyllodes less than 2.5 cm long and 3 mm wide; legumes 3-4 mm wide, straight, undulate or  $\pm$  coiled, not at all plicate
          7. Phyllodes linear-oblongate; flower heads not borne in racemes.. *A. chrysopoda*
          7. Phyllodes elliptic; flower heads in 1- or 2-headed racemes ..... 4a. *A. flavipila* var. *flavipila*
    4. Phyllodes glabrous or, especially when young, inconspicuously sub-glabrous
      8. Phyllodes 12-15 times as long as wide; at least base of peduncles and phyllode axils with hoary patch of resin-matted hairlets..... 5. *A. lanei*
      8. Phyllodes less than 8 times as long as wide; base of peduncles and phyllode-axils not hoary
        9. Phyllodes with gland at blade/pulvinus junction; pubescence on young branchlets and phyllodes simple and stellate (100x); legumes constricted between seeds ..... *A. ixiophylla*
        9. Phyllodes with gland 2-12 mm above pulvinus; all pubescence simple
          10. Racemes 2-headed; phyllodes narrowly elliptic; secondary-nerve reticulum fine, regular ..... 9. *A. verricula*
          10. Racemes 1-headed or flower heads solitary, borne on an inflorescence axis or not; phyllodes of other shapes, the secondary-nerve reticulum coarse, indistinct, or poorly developed
11. Flower heads solitary, inflorescence axis absent; phyllodes oblong-oblongate to oblong-elliptic, secondary nerves impressed, coarsely reticulate ..... 2. *A. cassicula*
11. Flower heads solitary on an axis; phyllodes of other shapes, secondary nerves more or less raised, not obviously reticulate
  12. Phyllodes arcuate-oblong narrowly; peduncles with crisped white pubescence; branchlets and phyllodes not resinous..... *A. kingiana*

12. Phyllodes oval, elliptic or oblong-elliptic, straight; peduncles with short, golden pubescence; branchlets and sometimes phyllodes resinous
13. Secondary nerves forming a regular, fine, but not always distinct, reticulum; racemes mostly 2-headed, rarely with one head ..... 9. *A. verricula*
13. Secondary nerves scarcely visible, not obviously reticulate ..... *A. loxophylla*
1. Phyllodes less than four times as long as wide
14. Phyllodes undulate, rounded, obviously mucronate abruptly
15. Phyllodes usually 2 cm long or longer; peduncles mostly 12-20 mm long; calyx lobes 3/4-united ..... 1. *A. awestoniana*
15. Phyllodes less than 2 cm long; peduncles less than 12 mm long; calyx lobes free ..... *A. dictyoneura*
14. Phyllodes not at all undulate, acute, obtuse or rounded-truncate, if mucronulate obscurely so
16. Racemes mostly 2-headed
17. Phyllodes elliptic to oblong-elliptic, usually obviously tomentulose, about 2-3 times longer than wide, not strongly resinous; bracteoles exerted in bud ..... 4a. *A. flavipila* var. *flavipila*
17. Phyllodes oval to elliptic, glabrous or at least obscurely subglabrous, mostly less than twice as long as wide, base as well as often veins strongly resinous-viscid; bracteoles not exerted ..... 4b. *A. flavipila* var. *ovalis*
16. Racemes 1-headed or heads solitary in phyllode axils
18. Flower heads solitary, inflorescence axis absent
19. Nervature of phyllodes  $\pm$  obscured by dense, lanate pubescence ... *A. lanuginophylla*
19. Nervature of phyllodes clearly evident, secondary nerves impressed, reticulate ..... 2. *A. cassicula*
18. Flower heads solitary on an axis
20. Phyllodes less than three times longer than wide, oval, elliptic, or oblong-elliptic, straight; peduncles with short, golden pubescence; branchlets and sometimes phyllodes, densely resinous ..... *A. loxophylla*
20. Phyllodes three or more times longer than wide, narrowly arcuate-oblong; peduncles with crisped white pubescence; branchlets and phyllodes not resinous ..... *A. kingiana*

### Descriptions

#### 1. *Acacia awestoniana* Cowan & Maslin, sp. nov (Figure 1, A-C)

*Frutex* effusus 2.5-3 m altus, ad 4 m diametro, *cortice* truncorum prope basin cinereo, longitudinaliter fissurata, *ramulis* teretibus, glabris, plerumque ad nodos apicesque valde resinosis. *Stipulae* persistentes, plus minusve foliaceae, obliquo-ovatae, 2-2.5 mm longae, 1-1.5 mm latae, glabrae. *Phyllodia* obliquo-ovalia ad elliptica, complanata, ad apicem obtusa ad truncata et brevi-acuminata, ad basem rotundata sed inaequilateraliter attenuata, pulvino 1-2 mm longo, lamina 15-30 mm longa, 11-22 mm lata, coriacea, patentia, undulata, glabra, atro-viridia, 3-nervata per

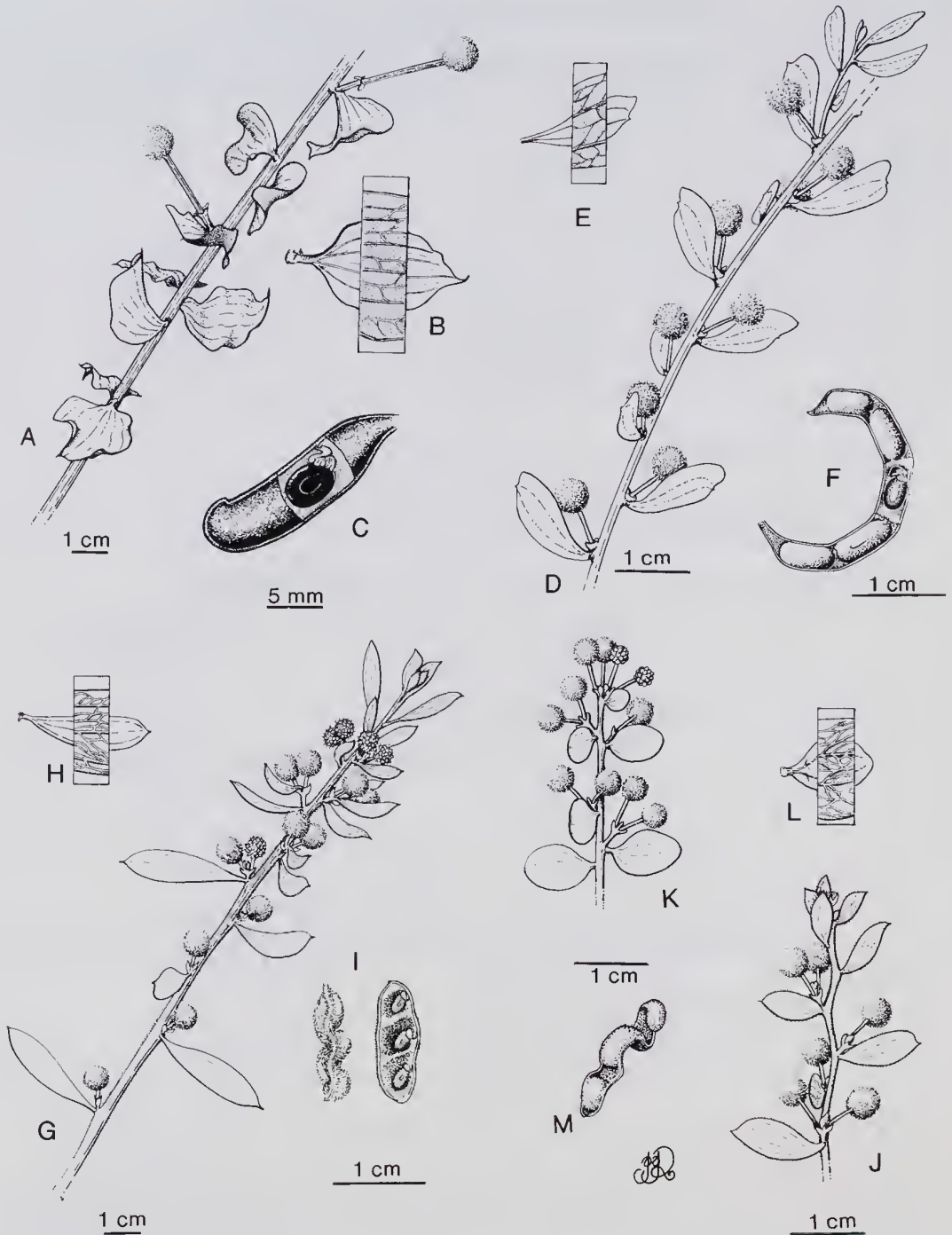


Figure 1. Flowering branchlet, enlarged portion of phyllode to show nervature and fruit of new taxa of *Acacia*. A-C - *A. awestoniana*. D-F - *A. cassicula*. G-I - *A. consobrina*. J - *A. flavipila* var. *flavipila*. K-M - *A. flavipila* var. *ovalis*. A-C drawn from *B.R. Maslin* 3745 (flowering branchlet) and *H. Steedman* s.n. (fruit); D-F from *K.R. Newbey* 488 (flowering branchlet) and *J. Kitcher* 5853 (fruit); G-I from *K.R. Newbey* 2441 (flowering branchlet) and *N. Stevens* KRN95111-1 (fruit); J from *R.J. Hnatiuk* 70397; K-M from *P. Roberts* 28 (flowering branchlet) and *B.R. Maslin* 522 (fruit).

superficiem, nervis salientibus, glande parva, basali. *Racemorum* axis 2-7 mm longus, resinosis, puberulus, 1-3-capitulatus, bracteis basalibus circa semicircularibus, plus minusve foliaceis, 1.5-2.5 mm longis, 1.5-2 mm latis, glabris. *Peduncul* (6-)12-20 mm longi, glabri. *Capitula* globularia, aurea, 5-6 mm diametro, 54-60-floribus, bracteolis peltatis, lamina ovata, acuminata, breviora quam gracili stipite. *Flores* 5-meri. *Sepala* petalis 1/2-3/4 breviora, 3/4-connata, puberula. *Petala* oblanceolato-lineararia, discreta, glabra. *Legumen* anguste oblongum, 10-22 mm longum, 3-5 mm latum, rectum, villosum, marginibus valde incrassatis. *Semina* obliqua, oblongo-elliptica, c. 4 mm longa, 3 mm lata, nitido-brunnea, pleurogramma magna, conspicua, arillo subapicali.

*Typus*: West side of Chester Pass Road at northern boundary of Stirling Range National Park, Western Australia, 15 Oct. 1974, A. S. Weston 9708 (holo: PERTH; iso: BRI, CANB, K).

Spreading *shrubs* 2.5-3 m tall, to 4 m diam. *Bark* longitudinally fissured at base of trunks, grey, red-brown on branchlets. *Branchlets* terete, glabrous, usually heavily resinous apically and at nodes. *Stipules* persistent, more or less foliaceous, obliquely ovate, 2-2.5 mm long, 1-1.5 mm wide, glabrous. *Phyllodes* obliquely oval to elliptic, apex obtuse to truncate and with a distinct, short-acuminate tip, base rounded but inequilaterally attenuate to 1-2 mm long pulvinus, blades 15-30 mm long, 11-22 mm wide, coriaceous, patent, often becoming deflexed in drying, undulate, glabrous, dark green, 3 or 4 distant, longitudinal, raised, main nerves on each face, openly anastomosing with salient secondary nerves. *Gland* small, situated on upper margin just above pulvinus. *Raceme axes* 2-7 mm long, resinous, puberulous, 1-3-headed. *Peduncles* (6-)12-20 mm long, glabrous; basal peduncular bract encircling base of peduncle, more or less foliaceous, 1.5-2.5 mm long, 1.5-2 mm wide, glabrous. *Flower-heads* globular, golden, 5-6 mm diam., 54-60-flowered. *Bracteoles* peltate, blade ovate, acuminate, shorter than slender claw. *Flowers* 5-merous. *Sepals* 1/2-3/4 length of petals, 3/4-united, puberulous externally. *Petals* oblanceolate-linear, free, glabrous. *Legumes* narrowly oblong, 10-22 mm long, 35 mm wide, straight, villose, margins strongly thickened. *Seeds* oblique (?), oblong-elliptic, c. 4 mm long, 3 mm wide, glossy brown; pleurogram large, conspicuous; *aril* subapical.

*Distribution*. South-west Western Australia in Eyre Botanical District (1:250,000 map 150-11). Endemic in Stirling Range National Park and apparently rare and confined to the northern boundary area.

*Habitat*. In Wandoo woodland or along watercourses.

*Flowering and fruiting periods*. Flowering October—November. A few valves with mature seeds collected in March and April.

*Affinities*. Most closely related to *A. dictyoneura* but easily distinguished by the much larger phyllodes with cuspidate apex, the larger stipules and bracts, longer peduncles, peltate bracteoles and connate sepals of *A. awestoniana* which is apparently a very rare species and is presently known in nature from only a few plants. Both species are in cultivation in Tasmania.

*Conservation status*. 2RC, using the criteria of Briggs & Leigh (1988).

*Etymology*. The new species is named in honor of Arthur S. Weston, collector of most of the material known of the species and a most enthusiastic and knowledgeable field botanist in Western Australia.

## 2. *Acacia cassicula* Cowan & Maslin, sp. nov. (Figure 1, D-F)

*Frutex* effusus 1-2.5 m altus, 1.5-4 m diametro, cortice aspri, cinerea, ramulis parce ad sparse puberulis vel pilosulosis, saepe ad apicem resinosis. *Stipulae* persistentes, subulatae ad subulato-triangularae, ad 1 mm longae, ciliolatae. *Phyllodia* oblonga ad elliptica, plus minusve inaequilateralia, ad apicem rotundata ad subtruncata et retusa, mucronulata ad rostrato-mucronulata,

ad basem acuta, pulvino 0.5-1 mm longo, glabro, lamina (12-)15-20(-22) mm longa, (4-)5-7(-8) mm lata, tenue coriacea, inclinata, recta, glabra vel rare ad marginem aliquot micro-pilis, 2-nervata per superficiem, nervis secundariis impressis, aperte reticulatis, glande conspicuo, annulari, latiore quam phyllodium crassitudine, 2-3 mm supra pulvinum. *Pedunculi* 3-5 mm longi, solitarii, glabri, bracteis basalibus persistentibus, late ovalis, 1.5 mm longis, glabris ciliolatis exceptis. *Capitula* globularia, 4 mm diametro, 22-30-floribus, bracteolis spathulatis, lamina late ovata, acuminata vel acuta. *Flores* 5-meri. *Sepala* petalis minus quam dimidia breviora, 1/2-3/4-connata, sericea. *Petala* anguste elliptica, discretata, glabra. *Ovarium* granuloseum vel papillosum, aliquando ad apicem puberulum vel sericeum. *Legumen* linearis, inter semina depressum, 4-7 cm longum, 3-4 mm latum, chartaceum, plus minusve circinatum, glabrum, plerumque valde resinoseum. *Semina* longitudinalia, oblonga, 4-5 mm longa, 2.5-3 mm lata, nitide auro-brunnea, pleurogramma angusta, c. 3 mm longa, arillo apicali.

*Typus*: 8 mi. [12.8 km] E of Gnowangerup, Western Australia, 23 Aug. 1964, K.R. Newbey 1302 (holo: PERTH; iso: CANB, K, MEL, PERTH).

Spreading *shrubs* 1-2.5 m tall, 1.5-4 m diam. *Bark* rough, grey. *Branchlets* sparingly to sparsely puberulous or pilosulose, often resinose apically. *Stipules* persistent, subulate to subulate-triangular, to 1 mm long, ciliolate. *Phyllodes* oblong to elliptic, more or less asymmetric, apex rounded to subtruncate and retuse, mucronulate to rostrate-mucronulate, base acute, pulvinus 0.5-1 mm long, glabrous, blades (12-)15-20(-22) mm long, (4-)5-7(-8) mm wide, thin-coriaceous, inclined, straight, glabrous or rarely few micro-hairs on margins, two longitudinal main nerves on each face distant, salient, secondary nerves impressed and openly reticulate. *Gland* conspicuous, annular, wider than phyllode thickness, situated on upper margin of phyllode 2-3 mm above pulvinus. *Peduncles* 3-5 mm long, solitary, glabrous; basal peduncular bracts persistent, broadly ovate, 1.5 mm long, glabrous except ciliolate. *Flower-heads* globular, 4 mm diam., 22-30-flowered. *Bracteoles* spatulate, blade broadly ovate, acuminate or acute. *Flowers* 5-merous. *Sepals* less than 1/2 length of petals, 1/2-3/4-united, sericeous externally. *Petals* narrow-elliptic, free, glabrous. *Ovary* granulose or papillose, sometimes puberulous or sericeous apically. *Legumes* linear, depressed between seeds, 4-7 cm long, 3-4 mm wide, chartaceous, in one or two coils, glabrous, usually strongly resinose. *Seeds* longitudinal, oblong, 4-5 mm long, 2.5-3 mm wide, glossy dark-brown; pleurogram narrowly U-shaped, c. 3 mm long; aril apical.

*Specimens examined*. WESTERN AUSTRALIA: Wagin, 10 Sept. 1955, J. Graffin s.n. (PERTH 00697192); 2 miles [3.2 km] E of Jerramungup, K.R. Newbey 488 (PERTH) and 488D (MEL, PERTH); 8 miles [12.8 km] E of Gnowangerup, K.R. Newbey 1302D (PERTH); 7 miles [11.2 km] NE of Ongerup, K.R. Newbey 3686 (PERTH); 4 km ENE of Jerramungup, K.R. Newbey 9535-1 (MELU, PERTH); 2.4 miles [3.8 km] E of Jerramungup on road to Ravensthorpe, M.D. Tindale 248 & B.R. Maslin (PERTH).

*Distribution*. South-west Western Australia in southern Avon and Roe Botanical Districts (1:250,000 maps I50-7, 8). Infrequent but locally common from Wagin ESE to Jerramungup.

*Habitat*. Found predominantly in *Eucalyptus occidentalis* woodland on sandy or granitic loam.

*Flowering and fruiting periods*. Flowers August—September; legumes with mature seeds collected in December.

*Affinities*. Related to *A. lanuginophylla* which is very distinct because of its densely lanate branchlets, phyllodes, peduncles, bracts, bracteoles and legumes. Both species have the same sort of annular phyllode-gland, stipules, solitary flower-heads, ovate bracteoles and broadly ovate bracts.

*Conservation status*. 3R, using the criteria of Briggs & Leigh (1988).

*Etymology.* The name is intended to call attention to the distinct secondary nerve reticulum in *A. cassicula* (a little net).

### 3. *Acacia consobrina* Cowan & Maslin, sp. nov. (Figure 1, G-1)

*Frutex* humilis 0.5-1.3 m altus, 2-3.5 m patens, ramulis plus minusve compressis, villosis, interdum appresso-pilosis, pilosis vel uncinato-pilosis. *Stipulae* persistentes, 1.5-4 mm longae, triangulares ad subulatae, villosae vel solum ciliolatae. *Phyllodia* anguste oblanceolata vel oblongo-oblanceolata, complanata, plerumque rotundato-obtusae et excentricae mucronulatae, pulvino 0.5-1.5 mm longo, villosa, lamina 27-38 mm longa, 4-9 mm lata, coriacea, inclinata ad patentem, parve falcata vel recta, plerumque villosa sed aliquando uncinato-pilosa vel suberecte villosa, 3- vel 4-nervata per superficiem, nervis secundariis plus minusve parallelis, anastomosantibus, glande inconspicua, usque 5 mm supra pulvinam. *Racemorum* axes ad 4.5 mm sub anthesi, rare apparenter deficiens, pilosulosi, bracteis basalibus ovatis, acutis ad acuminatis, 1.5-4 mm longis, plus minusve villosulosi. *Pedunculi* binati, 2-6 mm longi, rare ad 10 mm longi, puberuli ad pilosi, interdum pilis appressis. *Capitula* globularia, 4-6 mm diametro, (27)-36-47-floribus, bracteolis ovatis ad lanceolatis, acutis ad acuminatis, stipitatis, ciliatis. *Flores* 5-meri. *Sepala* petalis plus minusve 1/4-1/2 breviora, discreta ad 1/3-connata, ligulata vel oblanceolato-ligulata. *Petala* angusto-elliptica, discreta. *Ovarium* granulosum vel ad apicem papillatum ad appresso-puberulum saltem. *Legumen* oblongum, supra semines valde elevatum, 12-30 mm longum, 6-8 mm latum, inter semines valde plicatum, tenuiter coriaceum, villosum vel pilosum. *Semina* obliqua, lato-ovata vel rotundata ad oblongo-ovalia, 2.5-3 mm longa, 2-2.5 mm lata, nitide atro-brunnea, pleurogramma distincta, circa 1.5 mm longa, arillo subapicali.

*Typus:* 15 miles [24 km] N of Ongerup, Western Australia, 21 June 1964, K.R. Newbey 395 D (holo: PERTH; iso: BRI, CANB, K, NSW, NY).

Low, spreading *shrubs* 0.5-1.3 m tall, spreading 2-3.5 m. *Branchlets* ± compressed, villose, occasionally appressed-pilose, pilose or uncinato-pilose. *Stipules* persistent, 1.5-4 mm long, triangular to subulate, villose or at least ciliate. *Phyllodes* narrowly oblanceolate or oblong-oblanceolate, apex generally rounded and excentrically mucronulate, pulvinus 0.5-1.5 mm long, villose, blades 27-38 mm long, 4-9 mm wide, coriaceous, inclined to patent, slightly falcate or straight, usually villose but sometimes uncinato-pilose or subappressed pilose, each face with 3 or 4 distant, longitudinal main nerves, secondary nerves nearly as prominent, forming many anastomoses more or less parallel to main nerves. *Gland* inconspicuous, situated on upper margin of phyllode to 5 mm above pulvinus. *Racemes* axillary, (1-2)-headed, axes to 4.5 mm long at anthesis, rarely apparently lacking, pilosulose; basal peduncular bract ovate, acute to acuminate, 1.5-4 mm long, more or less villosulose. *Peduncles* 2-6 mm long, rarely to 10 mm, puberulous to pilose, occasionally hairs appressed. *Flower-heads* globular, 4-6 mm diam., (27-)-36-47-flowered. *Bracteoles* ovate to lanceolate, acute to acuminate, stipitate, ciliate. *Flowers* 5-merous. *Sepals* 1/2-3/4 length of petals, free to 1/3-united, ligulate or oblanceolate-ligulate. *Petals* narrowly elliptic, free. *Ovary* granulose, papillate or appressed puberulous, at least apically. *Legumes* oblong, 12-30 mm long, 6-8 mm wide, strongly plicate, folded between seeds, thin-coriaceous, villose or pilose. *Seeds* oblique, broadly ovate or round to oblong-oval, 2.5-3 mm long, 2-2.5 mm wide, glossy dark brown, pleurogram U-shaped, c. 1.5 mm long; aril subapical.

*Selected specimens examined.* WESTERN AUSTRALIA: on Borden water-catchment just S of Borden townsite, 34° 05' S, 118° 15' E, K. Bradby 44 (PERTH); Swan River Colony, J. Drummond 5:13 (PERTH); 12 km S of Highway 1 on Monkey Rock Road, E of Jerramungup, G. Craig 1671 (CANB, K, PERTH); 6 miles [9.6 km] N of Nyabing, V.F. McDougall 1 (PERTH); 15 miles [24 km] N of Ongerup, K.R. Newbey 395 (PERTH) and 395D (Irt) (CANB, PERTH); 1 mile [1.6 km] E of Lake Grace, K.R. Newbey 1760 (B, BM, G, MO, PERTH); 29 miles [46.6 km] SE of Ongerup, K.R. Newbey 3382 (AD, BRI, PERTH, W); 1.6 km N of Chillilup Pool, Pallinup River, K.R. Newbey 3389 (CANB, K, MEL, PERTH); Kalgarin [Karlgarin], April 1968, H.G. Rae s.n. (PERTH 00185752); Nembudding district, E.M. Williams (PERTH 931829).

*Distribution.* South-west Western Australia, predominantly in Roe Botanical District but extending into adjacent Avon and Eyre Botanical Districts (1:250,000 maps H50-15; 150-4, 7, 8, 11, 12). Most collections are from the Gnowangerup--Jerramungup--Chillilup Pool area with a few occurrences as far north as Karlgarin near Hyden. Although we do not have a representative collection from Gnowangerup, K.R. Newbey (pers. comm., 31 Aug. 1987) reports it as growing there. There is an outlying population, represented by E.M. Williams (PERTH 931829), in the Nembudding area about 200 km NNW of the main distribution.

*Habitat.* Growing in *Eucalyptus loxophleba* or *E. occidentalis* low woodland or *E. redunca* open shrub mallee in clayey sand to red clay-loam. It is to be expected on lower valley slopes, colluvial flats on sandplain or dolerite dikes in red crumbly soils (pers. comm., K.R. Newbey 31 Aug. 1987).

*Flowering and fruiting periods.* Flowers late May to September. Legumes with mature seeds collected November and December.

*Affinities.* *Acacia consobrina* is rather similar to *A. flavipila*, differing in proportions of the phyllodes and their nervature in particular, but also in the number of flowers per head, and in the fruit size and shape. At least superficially, it also resembles *A. xioophylla* which has both stellate and simple hairs on many parts, basal phyllode-glands, and linear, undulate fruits. The oblique orientation of the seeds in the pods is unlike any of the related species which all have longitudinally oriented seeds. *A. consobrina* appears to be relatively long-lived, perhaps up to 20-25 years according to K.R. Newbey (pers. comm., 31 Aug. 1987).

*Conservation status.* 2R, using the criteria of Briggs & Leigh (1988).

*Etymology.* The name has been chosen to indicate relatedness but distantly, i.e., cousins rather than siblings.

**4. *Acacia flavipila*** A.S. George, Western Austral. Naturalist 10(2): 32 (1966) (as "*Acacia flavopila*").

Based on *A. aurea* C. Gardner, J. & Proc. Roy. Soc. Western Australia 27: 174 (1942). *Type:* Stirling district, near Gnarming, Aug. 1925, W.E. Blackall (holo: PERTH 00741523); non Noronha ex Hoeven & de Vriese, Tijdschr. Natuurk. Gesch. 11: 128 (1939).

Spreading *shrubs* 0.5-2 m tall. *Branchlets* crispate-villose to puberulous or appressed-puberulous. *Stipules* persistent, elongate-triangular, c. 1 mm long, glabrous. *Phyllodes* elliptic to oval, mostly somewhat inequilateral, rounded to obtuse, micro-mucronulate, sometimes emarginate, pulvinus 0.25-0.5 mm long, crispate-puberulous, blades 10-22 mm long, 5-9 mm wide, rigid-coriaceous, patent, straight, crispate-villosulose to glabrous, dull green, 2- or 3-nerved on each face, main longitudinal nerves scarcely distinguishable from smaller nerves, forming an impressed reticulum. Gland situated on upper margin of phyllode 1-5 mm above pulvinus. *Raceme axes* 2-7 mm long, (1-)2-headed, golden pilosulose to sericeous; basal peduncular bracts ovate, 1-1.5 mm long, glabrous. *Peduncles* 3-6 mm long, golden pilosulose to sericeous. *Flower-heads* globular, golden, 28-35-flowered; bracteoles quadrate-ovate, ovate or lanceolate, exerted or not in bud. *Flowers* 5-merous. *Sepals* free, linear-oblancoolate, externally golden puberulous. *Petals* free, oblancoolate, apically golden puberulous externally. *Legumes* linear, 15-30 mm long, 3-4 mm wide, undulate, villose. *Seeds* not seen.

*Distribution.* South-west Western Australia in Avon and Roe Botanical Districts (1:250,000 maps H50-11, 15, 16; 150-3, 4; 151-5). Scattered from near Cadoux SE to near Dunn Swamp (c. 80 km NE of Ravensthorpe) but mostly found between Quairading and Hyden.

*Affinities.* This species and *A. chrysopoda* are similar in their habit, globular flower-heads, the number of flowers per head, and in floral details. They differ strongly in form of the phyllodia,



inflorescence form, and flower-head size. *A. flavipila* is also related, less closely, to *A. consobrina*, *A. cassicula*, *A. lanuginophylla*, *A. kingiana* and *A. loxophylla*. The two varieties differ in the relative proportions of the phyllodes, presence or absence of resin on the phyllodes and in details of the bracteoles.

*Orthography.* The original spelling of the specific epithet ("*flavopila*") has been corrected in accordance with Art. 73.8 and Rec. 73G of the International Code of Botanical Nomenclature (1988).

4a. *A. flavipila* var. *flavipila* (Figure 1, J)

*Shrubs*, not obviously resinous. *Phyllodes* elliptic to oblong-elliptic, mostly (10-)15-22 mm long, (4-)5-8 mm wide, 2-3 times as long as wide. *Bracteoles* ovate to lanceolate, long-stipitate, exserted in buds.

*Other specimens examined.* WESTERN AUSTRALIA: Westonia, 15 Feb. 1953, S.C. Bennett s.n. (PERTH 00698490); 37.75 km SW of Peak Eleanor, 33° 11' 27" S, 120° 52' 29" E, M.A. Burgman 1931 & S. McNee (PERTH); 2 km E of Kulin, 32° 40' S, 118° 10' E, R.J. Hnatiuk 770397 (PERTH); Holt Rock, May 1963, J.S. Lamont s.n. (PERTH 00661902); Emu Rock, B.R. Maslin 560 (MEL, NY, PERTH); Reserve 27584, 14 km NE of Merredin, B.G. Muir 817 (PERTH); 2 miles [3.2 km] SW of Kulin, K.R. Newbey 2608 (MO, PERTH); 5 miles [8 km] E of Kulin, K.R. Newbey 3222 (CANB, K, NY, PERTH); 15 km E of Dunn Swamp, c. 80 km NE of Ravensthorpe, K.R. Newbey 8131 (PERTH); Kulin, 12 May 1953, J.B. Wilson s.n. (PERTH 00698594).

*Distribution.* South-west Western Australia in Avon and Roc Botanical Districts (1:250,000 maps H50-15, 16; I50-3, 4; I51-5). Infrequent and known only from near Merredin, Kulin, Dunn Swamp, Holt Rock and Emu Rock, but locally common in the Kulin area.

*Habitat.* On poorly to well-drained clay-loam or brown sand.

*Flowering and fruiting periods.* Flowering July—August. Only one attached fruit-valve seen, on a February collection.

*Conservation status.* 3RC, using the criteria of Briggs & Leigh (1988).

5b. *A. flavipila* var. *ovalis* Cowan & Maslin, var. nov. (Figure 1, K-M)

*A. var. flavipila* phyllodiis brevioribus ad basem phyllodiorum et racemorum distincte resinosis, bracteolis quadrato-ovatis brevi-stipitatis in alabastro non exsertis differt.

*Typus:* c. 20 miles [32 km.] NW of Kondinin, Western Australia, 29 June 1970, A.S. George 9873 (holo: PERTH 00741523; iso: MEL, TLF).

*Shrubs* with phyllode bases, branchlet apices and inflorescences obviously resinous. *Phyllodes* oval to elliptic, mostly 10-14 mm long, 6-9 mm wide, less than twice as long as wide. *Bracteoles* quadrate-ovate with short stipe, not exserted in bud.

*Other specimens examined.* WESTERN AUSTRALIA: 2.5 miles [4 km] from Cadoux towards Kalannie, R.J. Cumming 1867 (CANB, PERTH); ± 23 miles [37 km] NW of Kondinin, A.S. George 9872 (CNRS-Montpellier, K, MEL, PERTH, TLF); Sorenson' Nature Reserve, 9 km W of Babakin on S side of Bec's Road, S.D. Hopper 5864 (MEL, PERTH); 3 miles [4.8 km] E of Corrigin on road to Bendinger, B.R. Maslin 506 (K, PERTH); 2 miles [3.2 km] S of Gnarning on road to Kulin, B.R. Maslin 522 (BRI, PERTH); 15 miles [24 km] N of Bulyee, K.R. Newbey 3425 (PERTH); 64 km SSW of Marvel Loch, K.R. Newbey 8431 (PERTH); 62 km SSW of Marvel Loch, K.R. Newbey

8432 (PERTH); between Kokardine and Cadoux on roadside, *P. Roberts* 28 (PERTH); roadside halfway between Cadoux and Kokardine, *B.H. Smith* 218 (PERTH); 153[243] mile peg on Hyden Road [13 km SE of Corrigin on main road to Kondinin], *D. Young* 109 (PERTH).

*Distribution.* South-west Western Australia in Avon and Roe Botanical Districts (1:250,000 maps H50-11, 16; I50-3, 4). Confined to an area bounded by Quairading E to near Gibb Rock and S to Kulin. One population occurs between Cadoux and Kokardine, c. 150 km N of Quairading, outside the main distribution.

*Habitat.* Well-drained sand or more often clay-loam on open undulating terrain.

*Flowering and fruiting periods.* Flowers May—September; only old fruit-valves seen.

*Conservation status.* 3RC, using the criteria of Briggs & Leigh (1988).

### 5. *Acacia lanei* Cowan & Maslin, sp. nov. (Figure 2, D-F)

*Frutex* effusus 2 m altus, ramulis teretibus, resinoso-costatis, albo-sericeis. *Stipulae* caducae vel per resinam albam obscurae, triangulares, c. 1 mm longae, glabrae. *Phyllodia* ligulata, complanata, obtuse-acuta, pulvino 1-1.5 mm longo, 43-60 mm longa, 3-5 mm lata, coriacea, ascendente, recta vel leviter curvata, glabra albo-sericea et resinosa ad basem excepta, 3-nervata per superficiem, nervis secundariis paucis, glande parve, prope basem. *Racemorum* axis 1-3 mm longus, rare ad 7 mm longus, saepe nullus, 1- vel 2-capitulatus, albo-sericeus, resinosis ad basem; bracteis basalibus ovatis ad lanceolatis, c. 1 mm longis. *Pedunculi* 3-5 mm longi, micro-puberuli, pilis rubris et albo-sericeis sed versus apicem pilis per resinam obscuris. *Capitula* globularia, 4-6 mm diametro, 34-38-floribus. *Flores* 5-meri. *Sepala* c. dimidia quam longa petala, linearia, discreta, micro-puberula ad apicem. *Petala* oblanceolato-elliptica, discreta, glabra. *Legumen* arcuato-lineare, 8.5-12 cm longum, 2-3 mm latum, supra semina elevatum, glabrum, viscidum. *Semina* longitudinalia, oblonga, 3.5-4.5 mm longa, 1.5-2 mm lata, nitido-brunnea, pleurogramma 2.5-3 mm longa, arillo apicali.

*Typus:* 3.6 miles [5.7 km] E of Hyden on road to Holt Rock, Western Australia, 14 July 1970, *B.R. Maslin* 566 (holo: PERTH; iso: BRI, K).

Spreading *shrubs* 2 m tall. *Branchlets* terete with several resinous ridges, white sericeous but pubescence  $\pm$  obscured by resin. *Stipules* caducous or obscured by white(dry) resin, triangular, about 1 mm long, glabrous. *Phyllodes* ligulate, bluntly acute, with a pulvinus 1-1.5 mm long, the blades 43-60 mm long, 3-5 mm wide, coriaceous, ascending, straight or weakly curved, glabrous except white-sericeous and resinous at base, with 2 or 3 distant, longitudinal main nerves on each face, secondary nerves numerous, finer than main nerves and parallel to them, anastomoses few, nearly longitudinal. Gland small, situated on the upper margin of phyllode just above pulvinus. *Raceme axes* 1-3 mm long, rarely to 7 mm, frequently absent, 1- or 2-headed, white-sericeous and resinous basally; basal peduncular bracts ovate to lanceolate, c. 1 mm long. *Peduncles* 3-5 mm long, with many red micro-hairs and white-sericeous basally, upper portion sericeous but hairs  $\pm$  obscured by resin. *Flower-heads* globular, 4-6 mm diam., 34-38-flowered. *Bracteoles* spatulate, blade rounded, much shorter than filiform stipe. *Flowers* 5-merous. *Sepals* half as long as petals, linear, free, micro-puberulous apically. *Petals* oblanceolate-elliptic, free, glabrous. *Legumes* arcuate-linear, 8.5-12 cm long, 2-3 mm wide, raised over seeds, glabrous, viscid. *Seeds* longitudinal, oblong, 3.5-4.5 mm long, 1.5-2 mm wide, shining, brown; pleurogram 2.5-3 mm long; aril apical.

*Other specimens examined.* WESTERN AUSTRALIA: R.J. Lane's property, Kulin, 22 km S of Hyden, 21 Aug. 1985, *K. Atkins* s.n. (CANB, MEL, NSW, NY, PERTH 00336971); Hyden, July 1979, *R.J. Lane* s.n. (PERTH 00336963); approx. 12 km S of Hyden, 27 July 1982, *R.J. Lane* s.n.

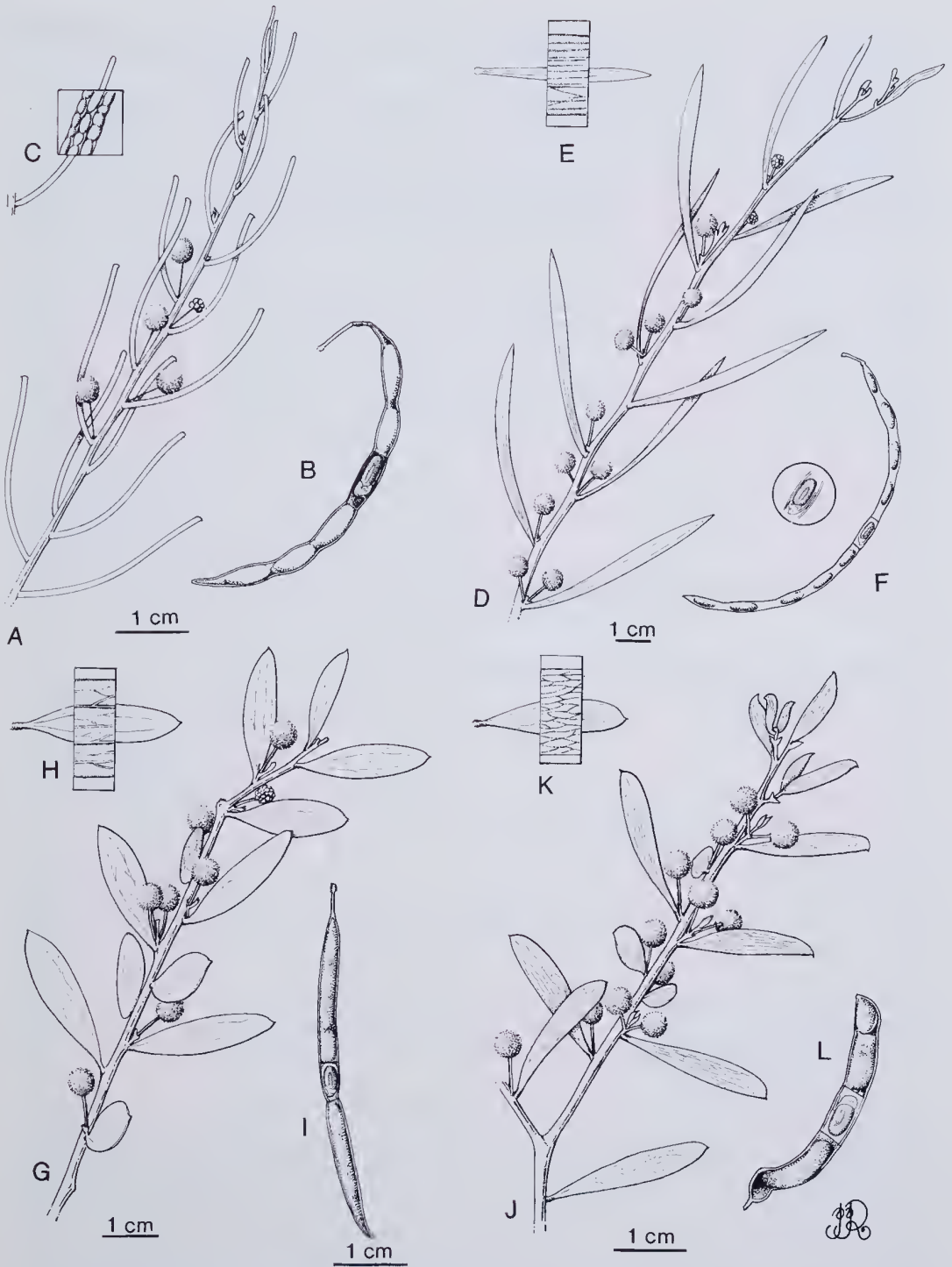


Figure 2. Flowering branchlet, enlarged portion of phyllode to show nervature and fruit of new species of *Acacia*. A-C - *A. lobulata*. D-F - *A. lanei*. G-I - *A. spongolitica*. J-L - *A. verrucula*. A-C drawn from S.D. Hopper 6402 (flowering branchlet) and J. Brown 59 (fruit); D-F from R.J. Lane s.n.; G-I from N. Stevens KRN 9507-1; and J-L from P. Pullen 10050 (fruit) and B.R. Maslin 1771 (flowering branchlet).

(PERTH 00336947); Hyden, 1979, *R.J. Lane* s.n. (PERTH 00336955); near Hyden, 18 July 1988, *R.J. Lane* s.n. (AD, G, K, MO, PERTH 00884847).

*Distribution.* South-west Western Australia in Roe Botanical District (1:250,000 map I50-2, 4). Restricted to area south and east of Hyden within a 25 km radius.

*Habitat.* Growing in association with Salmon Gum (*Eucalyptus salmonophloia*) or York Gum (*E. loxophleba*) along creek and drainage lines at lower elevations on red or brown clay, clay-loam or gravelly loam (*R.J. Lane*, pers. comm., 28 Aug. 1987).

*Flowering and fruiting periods.* Flowering mainly in July—August, sometimes September or as early as mid-July (*R.J. Lane*, pers. comm., 28 Aug. 1987 and 18 July 1988). Fruiting mid-November to mid-December (*R.J. Lane*, pers. comm., 28 Aug. 1987).

*Affinities.* Closely allied to several species in the *A. ixiophylla* alliance; it differs from *A. ixiophylla* in having longer, strap-like phyllodes, all simple pubescence, and longer, glabrous legumes. *A. lanei* can be distinguished most readily from all related species (of which *A. spongolitica* is perhaps the closest) by the white patch at each node, at the base of the phyllodes, in the axils and at the base of the peduncles.

*Conservation status.* 2E[K], using the criteria of Briggs & Leigh (1988).

*Etymology.* Named for Richard J. Lane, the Western Australian farmer who called our attention to the plant in July 1986 as an excellent windbreak because it is vigorous in growth and is not browsed by livestock.

## 6. *Acacia lanuginophylla* Cowan & Maslin, nom. nov.

Based on *A. lanuginosa* C. Gardner, Hooker's Icon. Pl., pl. 3379 (1939) non Hort. ex Regel, Gartenflora 3: 155 (1854).

*Type:* Mount Holland, between Southern Cross and Ravensthorpe, Western Australia, Sept. 1929, *C.A. Gardner* 2046a (holo: PERTH; iso: BRI, CANB, K, MEL, MO, NSW).

*Illustration.* C. Gardner, loc. cit.

*Affinities.* A very distinctive Western Australian species related to *A. flavipila* and to *A. cassicula*, characterized by woolly vegetative parts, bracts, bracteoles and legumes.

*Conservation status.* 3E, using the criteria of Briggs & Leigh (1988).

## 7. *Acacia lobulata* Cowan & Maslin, sp. nov. (Figure 2, A-C)

*Frutex* apertus erectus 1-2 m altus, cortice laevi, ramulis leviter angulatis, plus minusve tuberculatis, glabris, resinosis. *Phyllodia* teretia, apice valde excentrice curvato, acuto, (15-)25-30(-35) mm longa, 0.7-0.8 mm diametro, incurvata, glabra, griseo-viridia, dictyophlebia, areolis salientibus, nervis atratis, impressis, resinosis, glande circulari, 0.5-2 mm supra pulvinum. *Pedunculi* (2.5-)3-4.5(-6) mm longi, solitarii, rare binati, puberuli; capitula globularia, 3.5-4.5 mm diametro, 15-17-floribus, bracteolis spatulatis, lamina ovata ad lanceolata. *Flores* 5-meri. *Sepala* petalis plus minusve dimidia breviora, 1/3-1/2-connata, oblonga. *Petala* anguste elliptica, e. 2-plo longiora quam sepala, discreta. *Ovarium* dense albo-pilosum. *Legumen* lineare, 40-60 mm longum, 3-4 mm latum, tenuiter chartaceum, valde curvatum, glabrum, resinosum. Semina longitudinalia, oblonga, compressa, 4-5.5 mm longa, 1.8-2.3 mm lata, hebetate atro-brunnea, arillo apicali.

*Typus*: Chiddarcooping Nature Reserve, Western Australia, 23 July 1989, B.R. Maslin 6385 (holo: PERTH; iso: AD, BRI, CANB, K, MEL, NSW, NY, US, Z).

Erect, open, often spindly *shrubs* 1-2 m tall. *Bark* smooth. *Branchlets* slightly angled,  $\pm$  tuberculate, glabrous, resinous. *Stipules* not seen, apparently absent. *Phyllodes* terete with strongly, excentrically curved, acute tips and a 0.5 mm long pulvinus, (1-5)25-30(-35) mm long, 0.7-0.8 mm diam., ascending, incurved, glabrous, dull, grey-green; nerves resinous, impressed, forming a coarse, regular reticulum, areoles raised markedly. *Gland* circular, brownish, depressed in centre, situated on upper surface of phyllode 0.5-2 mm above pulvinus. *Peduncles* (2.5-)3-4.5(-6) mm long, solitary, occasionally in pairs, puberulous; basal peduncular bracts ovate, slightly concave, acute. *Flower-heads* globular, 3.5-4.5 mm diam., 15-17-flowered. *Bracteoles* spatulate to obovate-spatulate, blade ovate to lanceolate, puberulous, ciliolate. *Flowers* 5-merous. *Sepals* less than half to about half as long as petals, 1/3-1/2-united, oblong, ciliolate. *Petals* narrowly elliptic, acute, free, glabrous. *Ovary* densely white pilose. *Legumes* linear, raised over but not constricted between seeds, 40-60 mm long, 3-4 mm wide, thin-chartaceous, strongly curved, smooth, glabrous, resinous. *Seeds* longitudinal, oblong, compressed, 4-5.5 mm long, 1.8-2.3 mm wide, dull dark-brown; plicogram narrowly oblong, 2/3 seed length; aril membranous, apical, more than half as long as seed.

*Other specimens examined*. WESTERN AUSTRALIA: Chiddarcooping Nature Reserve, J. Brown JBr59 & A. Williams (CANB, G, K, MEL, NSW, NY, PERTH), S.D. Hopper 6395, 6396, 6397, 6398, 6399, 6400, 6401, 6402, 6403, 6404 and 6417 (all PERTH), A.S. Weston 14262 (AD, BRI, PERTH), 14547 (AD, BRI, PERTH).

*Distribution*. South-west Western Australia in the north eastern part of the Avon Botanical District (1: 250 000 map H50-12). Known only from Chiddarcooping Nature Reserve.

*Habitat*. Common on gritty loam and sand on gradual slopes in woodland and low scrub in association with *Eucalyptus* spp., *Melaleuca* spp. and *Oxylobium parviflorum*. Also occurs occasionally in clayey soils in woodland dominated by *E. wandoo*.

*Flowering and fruiting periods*. Flowering specimens have been collected in July; specimens with mature legumes have been collected in November.

*Affinities*. *Acacia lobulata* is the only species of *Acacia* in Australia which has terete phyllodes with reticulate nervature. It is most closely related to *A. verricula* which has flat, reticulate-nerved phyllodes. From it the new species differs, in addition to phyllode form, in having solitary flower heads without any evidence of a relietual axis, fewer flowers per head, and partially united calyx but quite similar fruits, seeds and basal peduncular bracts.

*Morphology*. The most notable characteristic of *A. lobulata* is the impressed net-nervature of the phyllodes with the areoles raised, giving the phyllodes a regular cobblestone appearance or, perhaps better, the appearance of a slender sausage in a too-small net. The nerves are all of about the same degree of distinctness and there are no midnerves or laterals as is often seen in the *Plurinerves*.

*Conservation status*. 2RC[K] using the criteria of Briggs & Leigh (1988).

*Etymology*. The name is chosen to call attention to the most striking feature of the new species, the surface of the phyllodes.

## 8. *Acacia spongolitica* Cowan & Maslin, sp. nov. (Figure 2, G-I)

*Frutex* 1-2 m altus, cortice cinereo, ramulis versus apicem compressis, resinosis, saepe plus minusve minute glanduloso-puberulis. *Stipulae* caducae, anguste triangulares, circa 0.25 mm longae. *Phyllodia* lineari- ad oblongo-elliptica, complanata, obtusa ad acuta, apiculata, pulvino

1-1.5 mm longo, lamina 28-70(-80) mm longa, 4-7(-11) mm lata, coriacea, patentia, recta, glabra, hebetato-viridia, 2-nervata principalia per superficiem, nervis marginalibus interdum resinosis projecturis ornatis, glande usque ad 2 mm supra pulvinum, latiora quam phyllodiorum crassitudine. *Racemorum axis* 1-7 mm longus, 1- vel 2-capitulatus, bracteis basalibus c. ovoidis, acutis, usque ad 1 mm longa. *Pedunculi* 5-9(-14) mm longi, glabri vel disperse glanduloso-micro-pilis, graciles. *Capitula* globularia vel brevi-oblongoidea, vivide atro-aurea, 4(-5) mm diametro, (24-)28-32-floribus, bracteolis lineari-oblanccolatis. *Flores* 4-meri. *Sepala* petalis dimidia breviora, 1/3-3/4-connata, glanduloso-ciliolata. *Petala* elliptica vel elliptico-oblanccolata, discreta. *Ovarium* granulose. *Legumen* (submaturum) lineare, plus minusve inter semina constrictum, 50-65 mm longum, 2.5 mm latum, arcuatum, glabrum, resinose.

*Typus*: Near West River Crossing, Western Australia, 11 Sept. 1966, K.R. Newbey 2472 (holo: PERTH; iso: BRI, CANB, K, MEL, PERTH).

*Shrubs* 1-2 m tall, spreading 1.5-2.5 m. *Branchlets* compressed apically, resinous, often more or less micro-glandular-puberulous. *Stipules* caducous, narrow-triangular, c. 0.25 mm long. *Phyllodes* linear- to oblong-elliptic, obtuse to acute, apiculate, pulvinus 1-1.5 mm long, blades 28-70(-80) mm long, 4-7(-11) mm wide, coriaceous, patent, straight, glabrous, dully dark-green, each face with 2 or 3 distant, longitudinal main nerves from pulvinus, secondary nerves nearly as distinct, parallel to main nerves, anastomoses infrequent, marginal nerves sometimes with small resinous projections. *Gland* situated on the upper margin of phyllode to 2 mm above pulvinus, broader than thickness of phyllode. *Raceme axes* 1-7 mm long, or much longer after apical vegetative growth, 1- or 2-headed, heads axillary, more numerous on elongated shoots; basal peduncular bracts c. ovate, acute, 1 mm long or shorter. *Peduncles* 5-9(-14) mm long, glabrous or with scattered glandular micro-hairs, slender. *Flower-heads* globular to short-oblongoid, bright deep-golden, 4(-5) mm diam., (24-)28-32-flowered. *Bracteoles* linear-oblanccolate. *Flowers* 4-merous. *Sepals* half as long as petals, 1/3-3/4-united, glandular-ciliolate. *Petals* elliptic or elliptico-oblanccolate, free. *Ovary* granulose. *Legumes* (submature) linear, 50-65 mm long, 2.5 mm wide, curved, glabrous. *Seeds* longitudinal, oblong-elliptic, 4 mm long, 2 mm wide, glossy, brown; arcole 2.5 mm long, oblong; aril apical.

*Other specimens examined*. WESTERN AUSTRALIA: Hamersley River, Fitzgerald River National Park, 33° 45' S, 119° 40' E, K. Bradby KLB13 (PERTH); Fitzgerald River area, c. 70 miles [112.7 km] ESE of Ongerup, R.G. Coveny 3199, T.E.H. Aplin & I. L. Lethbridge s.n. (PERTH); junction of Fitzgerald and Susetta Rivers, Reserve No. 24048, 34° 01' S, 119° 27' E, 12 July 1970 A.S. George s.n. (PERTH 00190489); 30 miles [48 km] W of Ravensthorpe, F. Lullfitz L3520 (PERTH); Boat Harbour, K.R. Newbey 3258 (PERTH); 32 km SE of Ongerup, K.R. Newbey 4316 (PERTH); 22 km NNE of Ongerup, K.R. Newbey 4767 (AD, BRI, CANB, K, MEL, NSW, NY, PERTH); 11 km NE of Coomperup, c. 52 km WSW of Ravensthorpe, K.R. Newbey 5053 (PERTH); 32 km SE of Ongerup, N. Stevens KRN9507-1 (PERTH); Roe's Rocks, R.D. Royce 8996 (PERTH).

*Distribution*. South-west Western Australia in the Roe and Eyre Botanical Districts (1:250,000 maps I50-8, 12). Ranging from near Ongerup and Boat Harbour E to the West River (c. 30 km W of Ravensthorpe) with numerous collections within the Fitzgerald River National Park.

*Habitat*. Common in *Eucalyptus platypus* or *E. astringens* low woodland in skeletal to shallow soils (loam, sandy or loamy clay) on spongolite breakaways. Rare in *E. transcontinentalis* open shrub mallee in sand on plain. It is frequent and locally common throughout its range, often the dominant plant form; its presence may be detected by the strongly aromatic odour of its resinous foliage well before it is visible (K.R. Newbey, pers. comm., 31 Aug. 1987). (It is presumably the resin of, especially, the branchlets that is the substrate for a sooty mould frequently seen on slightly older branchlets).

*Flowering and fruiting periods*. Flowering collections in July—September. Mature legumes not seen; submature ones collected in early December.

*Affinities.* *A. spongoliuca* is superficially very similar to several species in the *A. ixiophylla* complex but it is instantly separable by its tetramerous flowers, compressed branchlets, and connate, glandular-ciliolate sepals; it is perhaps most closely related to *A. lanei* and *A. ixiophylla*.

*Conservation status.* Not considered either rare or endangered.

*Etymology.* The specific epithet, proposed by the collector of the type material, refers to the substrate common for the species, very often soil derived from spongolite, a sedimentary rock rich in sponge spicules.

### 9. *Acacia verricula* Cowan & Maslin, sp. nov. (Figure 2, J-L)

*Frutex* multicaulis 0.5-3 m altus, late coronatus, caulium prope basin cortice fissurata, supra laevi, ramulis rufis, resinosis, parce puberulis, pilis simplicibus, antrorse curvatis, saepe aureis. *Stipulae* persistentes, triangulares, minores quam 0.5 mm longae. *Phyllodia* complanata, lenticularia ad anguste elliptica vel lineari-elliptica, obtusa ad acuta, aliquando brevi-mucronulato, pulvino minore quam 1 mm longo, lamina (11-)15-30(-38) mm longa, (2-)3-5(-6) mm lata, tenui-coriacea, leviter curvata, glabra vel ad marginem pilis antrorse curvatis, pallido-viridi, resinosa, nervis secundariis in reticulo junctis, glande (1-)2-6(-12) mm supra pulvinum. *Racemorum axis* 1-6 mm longus, plerumque bicapitulatus, puberulus, saepe resinosis, aliquando nullus, bracteis basalibus ovatis, persistentibus, glabris. *Pedunculi* (2-)3-6(-8) mm longi, puberuli, pilis praecipue antrorse declinatis. *Capitula* globularia, aurea, (3-)4-5 mm diametro, 25-35-floribus. *Flores* 5meri. *Sepala* petala plus quam dimidia longiora, discreta, linearia. *Petala* anguste elliptica, plus minusve discreta, glabra. *Ovarium* glabrum vel subglabrum. *Legumen* lineare, arcuatum, complanatum, 2.5-5 cm longum, 2-4 mm latum, saepe undulatum, glabrum vel subglabrum, valde nitido-resinosum. *Semina* longitudinalia, elliptica, 3-3.5 mm longa, 2 mm lata, nitido-brunnea, pleurogramma distincta, elongata, arillo apicali vel subapicali.

*Typus:* about halfway between Peak Charles and Peak Eleanor, Western Australia, 14 Aug. 1985, B.R. Maslin 5796 (holo: PERTH; iso: CANB, K, MEL, NSW).

? *A. gluinosa* F. Muell. (pro parte); nom. ambiguum. See Discussion below.

[*A. ixiophylla* auct., non Benth. (1842); W.E. Blackall & B.J. Grieve, How to Know Western Austral. Wildfl. 1: 194 (1954)]

Multiple-stemmed, spreading *shrubs* 0.5-3 m tall with crown 1-6 m diam., rarely a spindly 2 m tree. *Bark* grey, finely fissured at base of stems, smooth above. *Branchlets* reddish, resinous, sparingly puberulous with simple, antrorsely curved, often golden, hairs. *Stipules* persistent, triangular, less than 0.5 mm long. *Phyllodes* flat, lenticular to narrow- or linear-elliptic, somewhat inequilateral, obtuse to acute, mucro (when present) centric or excentric, very short, pulvinus less than 1 mm long, blades (11-)15-30(-38) mm long, (2-)3-5(-6) mm wide, thin-coriaceous, slightly curved, glabrous or with few antrorsely curved hairs marginally, pale green, resinous; main nerves and secondary nerves scarcely distinguishable from one another, anastomoses usually impressed and forming a fine, regular-meshed reticulum. *Gland* situated on the upper margin of phyllode (1-)2-6(-12) mm above pulvinus. *Raceme axes* 1-6 mm long, usually 2-headed, puberulous, often resinous, sometimes absent; basal peduncular bracts ovate, persistent, glabrous. *Peduncles* (2-)3-6(-8) mm long, puberulous, hairs mainly antrorsely declinate and golden. *Flower-heads* globular, golden, (3-)4-5 mm diam., 25-35-flowered. *Flowers* 5-merous. *Sepals* more than half as long as petals, free, linear. *Petals* narrowly elliptic, all free or some partly connate, glabrous. *Ovary* glabrous or with few papillae-like micro-hairs apically. *Legumes* linear, 2.5-5 cm long, 2-4 mm wide, mostly undulate, sometimes only arcuate, not constricted between seeds, glabrous or few marginal antrorsely curved micro-hairs, markedly nitid-resinous, especially when young. *Seeds* longitudinal, elliptic, 3-3.5 mm long, 2 mm wide, glossy brown; pleurogram distinct, elongate, narrowly U-shaped, c. 1.2-1.8 mm long; aril apical to subapical.

*Selected specimens examined.* Top of scarp, Madura, *T.E. H. Aplin & M.E. Trudgen* 5829 (AD, BM, BRI, G, PERTH); Muntadgin, *E.T. Bailey* 629 (PERTH); 5.8 km SSE of Mt Beaumont, *M.A. Burgman* 1751 and *S. McNee* (PERTH); 6.25 km SE of Mickinwobert Rock, *M.A. Burgman* 2089 and *S. McNee* (PERTH); Frank Hann National Park, *D. Butcher* 313 (MEL, PERTH); near Carracarrup Creek, 17 km S of Ravensthorpe, *G. Craig* 1523 (PERTH); 9 miles [14.5 km] NE of Kondinin, *A.S. George* 9876 (PERTH, TLF); Yate Swamp, 47 miles [75.5 km] W of Esperance, *I.L. Lethbridge* 34 (PERTH); c. 12 miles [19 km] SE of Kulin, *B.R. Maslin* 528 (NSW, PERTH); Nalyering Wells, 13 miles [21 km] N of Kellerberrin on road to Yelbeni, *B.R. Maslin* 595 (NSW, PERTH); c. 10 miles [16 km] NNW of Bruce Rock towards Doodlakine, *B.R. Maslin* 1785 (PERTH); 1 mile [1.6 km] W of Yellowdine on Great Eastern Highway, *B.R. Maslin* 1838 (PERTH) and 2395 (CANB, K, MEL, PERTH); 4.8 km E of Ravensthorpe towards Esperance, *B.R. Maslin* 3449 (BRI, MO, NSW, PERTH); near Hamersley River crossing in Fitzgerald River National Park, *B.R. Maslin* 4061 (PERTH); Lake Grace Golf Club, *R.F. Maslin* s.n. (PERTH 00699500); 1 km W of Lake Cronin, *K.R. Newbey* 5204 (PERTH); 29 km S of Tadpole Lake, Frank Hann National Park, *K.R. Newbey* 5501 (CBG, PERTH); 6 km S of Peak Charles, Peak Charles National Park, *K.R. Newbey* 6461 (PERTH); 3 km NW of Heartbreak Ridge microwave tower, *K.R. Newbey* 7053 (PERTH); 24 km SSW of Mt Malcolm, Fraser Range, *K.R. Newbey* 7638 (PERTH); 32 km SW of Buningletonia Spring, c. 70 km SSW of Zanthus, *K.R. Newbey* 8255 (PERTH); c. 3 km NE of Howick Hill, *A.E. Orchard* 1135 (PERTH); 11 miles [17.6 km] N of Lake Grace towards Kulin, *S. Paust* 884 (PERTH); central west side of Chiddarcooping Hill Nature Reserve, *A.S. Weston* 14261 (CANB, K, PERTH).

*Distribution.* South-west Western Australia mainly in the Avon, Roe and Eyre Botanical Districts but with a few collections from the eastern part of the Coolgardie Botanical District and one outlier at Madura in the Nullabor Botanical District (1:250,000 maps H50-12, 15, 16; H51-15; H52-13; 150-3, 4, 7, 8, 12; 151-1, 2, 5, 6). Mainly scattered throughout an area bounded by Chiddarcooping Hill Nature Reserve and Trayning, south to the Fitzgerald River, east to near Sparkle Hill (c. 100 km NE of Esperance) and north to the Fraser Range and north-east to near Buningletonia Spring; the Madura collection is from along the Eyre Highway within 175 km of the border with South Australia, if the collection data are correct.

*Habitat.* In open shrub mallee or low mallee woodland often in association with *Eucalyptus* spp. (*E. wandoo*, *E. platypus*, *E. salubris*, *E. transcontinentalis*, *E. longicornis*, *E. salmonophloia*, *E. redunca*), rarely in open savanna or along creek course, on soils of clay, sandy or gravelly loam or brown, red or white sand.

*Flowering and fruiting periods.* Flowers collected in late May to September; mature fruits with seeds collected in December and January.

*Affinities.* Material of the new species has usually been referred to the eastern *A. ixiophylla* which differs by its stellate hairs intermixed with simple ones on many parts, by its relatively well-marked main nerves, by the position of the phyllode-gland at the distal end of the pulvinus, pubescent ovary, and semiconstricted legumes which are dull and villose, at least marginally. *A. verricula* is also the nearest relative of *A. lobulata*.

*Synonymy.* *Acacia glutinosa* F. Muell. was published in *Fragm.* 4: 6 (1863) with the type indicated only as having been collected in Western Australia by G. Maxwell. Two sheets at Herb. MEL which we and others consider to comprise Mueller's type, each bears a flowering branchlet and a packet of fruits and seeds. We have checked the protologue, point by point, with the MEL sheets (1553911 and 1553912) and it is clear that Mueller had this material before him when he described the species. There is also a sheet at K, bearing only a flowering branchlet, annotated by Mueller as *A. glutinosa*, which is surely a part of the type collection. The flowering material at both K and MEL is labelled in Mueller's hand as being from the Melbourne botanical garden but one of the MEL sheets (1553911) is annotated by Mueller as "*Acacia ixiophylla* Benth.", the other (MEL 1553912) as "*Acacia glutinosa* F. M./*A. ixiophylla* var. Benth.", also in Mueller's hand. Both MEL sheets bear packets containing mature pods and seeds, but only sheet 1553911 is annotated to suggest the contents were collected by Maxwell, the collector cited in the protologue. This packet



also has been annotated by Mueller as both *A. ixiophylla* and as *A. glutinosa*. Bentham (1864) synonymized *A. glutinosa* under *A. ixiophylla*, explaining he could see no real differences between the two, one from the west, the other from the east. Certainly the flowering material on the type sheets is not *A. ixiophylla* nor does it have anything to do with *A. montana* as suggested by Maiden (1916) in his analysis of the confusion surrounding *A. glutinosa*, *A. ixiophylla*, *A. montana* and *A. fuliginea*.

Assuming that the flowers and fruits comprising the type of *A. glutinosa* represent the same taxon, we are at a loss to suggest what it might be. The fruits could be those of *A. verrucula*, although the seeds of this species are smaller than those in the packets, and its phyllodes shorter, differently shaped and with totally different venation from the type of *A. glutinosa*. The phyllode-nerves of the *A. glutinosa* type are numerous, immersed and rarely with anastomoses, while *A. verrucula* phyllodes have a fine, regular reticulum of secondary nerves.

In view of well-documented instances of Mueller's rather lax euratorial practices, we consider seriously the possibility that the MEL sheets bear material of two different taxa, the Maxwell seed collection from Western Australia (possibly *A. verrucula* or close relative) and the cultivated flowering specimens from the botanical garden, representing a species we are unable to identify. Because of the uncertainties involved, we are not prepared to lectotypify the name and conclude that *A. glutinosa* must be considered a *nomen dubium*.

*Conservation status.* Not considered as either rare or endangered.

*Etymology.* *A. verrucula* is so-named in allusion to the net-like appearance of the secondary nervature of the phyllodes.

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